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REMARKS

Claims 1-24 are all the claims presently pending in the application. Claims 14-15 are amended to more clearly define the invention. Claims 1, 9-10, 12, 14-17, and 24 are independent.

These amendments are made only to more particularly point out the invention for the Examiner and not for narrowing the scope of the claims or for any reason related to a statutory requirement for patentability.

Applicant also notes that, notwithstanding any claim amendments herein or later during prosecution, Applicant's intent is to encompass equivalents of all claim elements. Entry of this §1.116 Amendment is proper. Since the Amendments above narrow the issues for appeal and since such features and their distinctions over the prior art of record were discussed earlier, such amendments do not raise a new issue requiring a further search and/or consideration by the Examiner. As such, entry of this Amendment is believed proper and Applicant earnestly solicits entry. No new matter has been added.

Applicant gratefully acknowledges the Examiner's indication that claims 1-13 and 16-24 are allowed. However, Applicant respectfully submits that all of the claims are allowable.

Claims 14-15 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Bastiani, et al. (U.S. Patent No. 6,609,167) in view of Cote, et al. (U.S. Patent No. 5,870,556).

This rejection is respectfully traversed in the following discussion.

I. THE CLAIMED INVENTION

A first exemplary embodiment of the claimed invention, as defined by independent

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claim 14, is directed to a communication method for a network node attached to a serial bus. The method includes setting a state machine in a receive mode, determining a measured time between sending a child notify signal from the network node to the remote node and receiving a parent notify signal from the remote node at the network node, and setting the state machine in an idle mode for an interval beginning with an end timing of a packet transmitted from the network node to the bus until the interval corresponds to the measured time.

A second exemplary embodiment of the claimed invention, as defined by independent claim 15, is directed to a communication method for a network node attached to a serial bus. The method includes setting a state machine in a receive mode, incrementing a time count value beginning with a start timing of a child notify signal transmitted from the network node to the bus and terminating the increment of the time count value at an end timing of a parent notify signal received by the node from the bus, and setting the state machine in an idle mode for an interval beginning with an end timing of a packet transmitted from the node to the bus until the interval corresponds to the incremented time count value.

Conventional parent/child networks, such as IEEE-1394 standard networks, an example of which is shown in Fig. 4A - 4D, have certain difficulties. These difficulties may primarily be due to a communication length which is longer than 4.5 meters which may require the use of 8B/10B block codes. For example, as shown in Fig. 5A, as long as the length of the Data Prefix D4 is greater than the turnaround time, then contention is prevented between the packet P5 and the Grant signal G3. Further, in order for a packet from the root node 2 to be transmitted without encountering the Request signal R2, it is necessary that the length of the Data Prefix D3 is greater than the turnaround time between nodes 2 and 3.

One of the problems for these conventional networks is the likelihood of a situation in

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which a Request signal remains asserted (i.e. is not canceled) in a longer than 4.5 meter bus section and contends with other signals. For example, as shown in Figs. 8A - 8C, if the data length of the packet from node 3 to node 4 is shorter than the distance between nodes 3 and 4, then node 3 will receive a "ghost" request signal from node 4, which prevents node 1 from receiving an acknowledgment signal from node 4 indicating receipt of the packet by node 4.

The cause of this problem is illustrated by the timing diagram of Fig. 9, which shows that node 3 transitions from the Idle state into a Request state because of the receipt of a Request signal from node 4 despite the fact that node 3 has transmitted a data packet to node 4. Therefore, even though node 4 receives the data packet and sends an acknowledgment signal to node 3, node 3 ignores the acknowledgment signal because node 3 is in a Request state and is waiting for a Grant signal from node 2.

The present invention solves these problems by ensuring that the transceiver in the network maintains an Idle state for a period of time that corresponds to the turnaround time between other nodes.

In other words, the present invention recognizes the relationship between the time period for which the Idle state should be maintained and the measured, actual turnaround time.

In an exemplary embodiment of the invention, a measured time interval between sending a child notify signal from a network node to a remote node and receiving a parent notify signal from the remote node at the network node sets a time for which the node is held in the idle state. In this manner, a tree identification process may be used to establish the amount of time for which the node should be held in an idle state during normal operation.

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II. THE PRIOR ART REJECTION

The Examiner alleges that the Cote et al. reference would have been combined with the Bastiani et al. reference to form the claimed invention. Applicant submits, however, that these references would not have been combined and even if combined, the combination would not teach or suggest each and every element of the claimed invention.

None of the applied references teaches or suggests the features of the claimed invention including: 1) determining a measured time between sending a child notify signal from a network node to a remote node and receiving a parent notify signal from the remote node at the network node as recited by independent claim 14; and 2) incrementing a time count value beginning with a start timing of a child notify signal transmitted from a network node to a bus and terminating the increment of the time count value at an end timing of a parent notify signal received by the node from the bus as recited by independent claim 15. As explained above, these features enable a tree identification process to determine the amount of time for which the node should maintain an idle state during normal operation.

Indeed, the Examiner does not allege that any of the applied references teaches or suggests these features.

The Bastiani et al. reference clearly does not teach or suggest these features.

Rather, as explained before, the Bastiani et al. reference merely discloses forcing a device to wait for an arbitrarily assigned, predetermined turnaround time between the time of receiving a signal and responding to the signal to ensure that the bus line has settled and to provide enough time for the other one of the slave/host to activate its receiver (col. 24, lines 19-27 and col. 42, lines 31-42).

In other words, the Bastiani et al. reference forces a device to wait before that device

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is permitted to “turnaround” a received signal and to provide a return signal. That period being an arbitrarily assigned amount of time and corresponding to the amount of time that is required to pass before a local device is permitted to “turnaround” a signal and send a response.

The Bastiani et al. reference does not teach or suggest that the arbitrarily assigned amount of time is based upon anything at all, let alone a measured time, or a measured time between sending a child notify signal from a network node to a remote node and receiving a parent notify signal from the remote node at the network node.

The Cote et al. reference does not remedy these deficiencies.

Indeed, the Examiner does not allege that the Cote et al. reference teaches or suggests a measured time between sending a child notify signal from a network node to a remote node and receiving a parent notify signal from the remote node at the network node.

The Cote et al. reference discloses measuring an amount of time between when a message is sent and a message is received via a remote node. In other words, the “the Cote et al. reference discloses measuring a “round-trip” time (col. 7, lines 21 - 25) which is the amount of time that elapsed between when a message was sent and a reply to that message was received.

The Cote et al. reference discloses comparing that measured time against a reference round-trip time and if the measured time exceeds the reference round-trip time then the Cote et al. reference determines that the turnaround time is excessive and that the link may be defective.

The Cote et al. reference does not teach or suggest that the measured time is obtained by determining a measured time between sending a child notify signal from a network node to

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a remote node and receiving a parent notify signal from the remote node at the network node.

The Cote et al. reference also does not teach or suggest that the reference round-trip time is obtained by determining a measured time between sending a child notify signal from a network node to a remote node and receiving a parent notify signal from the remote node at the network node.

Rather, the Cote et al. reference teaches that the reference round-trip time may be preselected when the monitoring software is started on the monitoring server and provides an example of a round-trip reference time being assigned an arbitrarily lengthy time of one hour (col. 7, lines 29-36).

Clearly the Cote et al. reference does not remedy the deficiencies of the Bastiani et al. reference.

Therefore, the Examiner is respectfully requested to withdraw the rejection of claims 14-15.

III. FORMAL MATTERS AND CONCLUSION

In view of the foregoing amendments and remarks, Applicant respectfully submits that claims 1-24, all the claims presently pending in the Application, are patentably distinct over the prior art of record and are in condition for allowance. The Examiner is respectfully requested to pass the above application to issue at the earliest possible time.

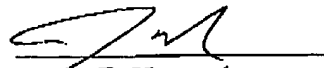
Should the Examiner find the Application to be other than in condition for allowance, the Examiner is requested to contact the undersigned at the local telephone number listed below to discuss any other changes deemed necessary in a telephonic or personal interview.

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The Commissioner is hereby authorized to charge any deficiency in fees or to credit any overpayment in fees to Attorney's Deposit Account No. 50-0481.


Respectfully Submitted,

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CERTIFICATION OF FACSIMILE TRANSMISSION

I hereby certify that I am filing this Amendment After Final-Rejection Under 37 CFR §1.116 by facsimile with the United States Patent and Trademark Office to Examiner Saba Tsegaye, Group Art Unit 2662 at fax number (571) 273-8300 this 19th day of April, 2006.


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